MCO144

HEALTH BUILDING NOTE 38

Accommodation for Adult Acute Day Patients

DEPARTMENT OF HEALTH AND SOCIAL SECURITY
WELSH OFFICE

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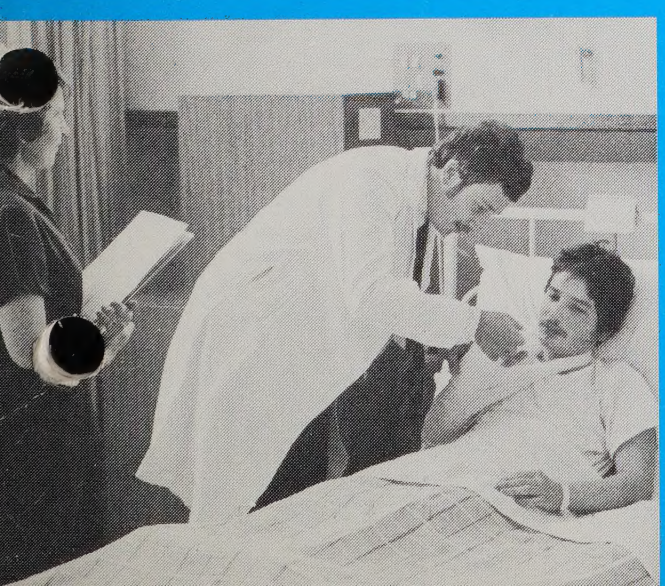

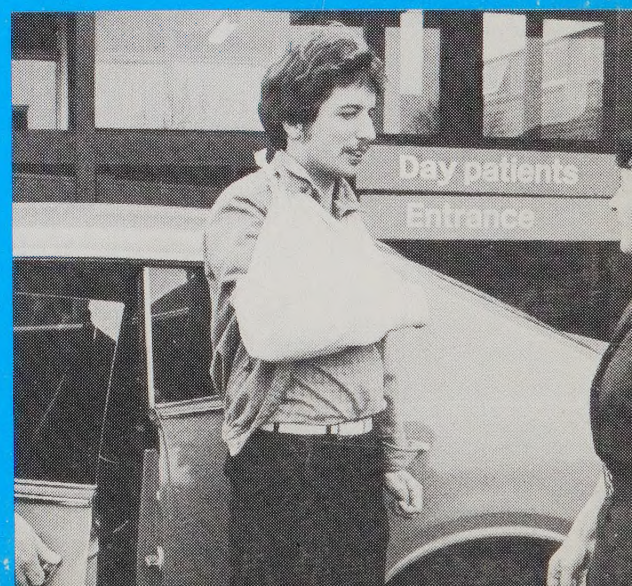

Health Building Notes

Health Building Notes are intended for use in the briefing and design stages of projects to assist those concerned with the provision and design of new health buildings and the adaptation or extension of existing premises. The Notes contain information on the relevant aspects of current policy, the functional requirements and resultant design implications. They aim at encouraging economy in capital and revenue costs by consistency of provision, standards and equipment and the efficient use of space.

The guidance contained in the Notes is flexible. That is to say, optional solutions with cost implications are indicated, where appropriate, leaving local planners to make their own choice, having regard to overall cost limits. The general approach is to identify functions, activities, equipment needs and those dimensions which are critical to the efficient performance of an activity, but not to relate functions to specific or preconceived floor areas.

A feature of these Notes is the reference to Activity Data sheets, which provide the detailed user requirements for each room or space.

To avoid repetition, guidance on those spaces that commonly occur in health buildings has been brought together in a Health Building Note entitled *Common Activity Spaces* to which reference is made, where appropriate, in individual Notes. A draft of the *Common Activity Spaces* document has been made available to NHS Authorities.

The Notes are prepared in consultation with representatives from the NHS and appropriate professional bodies concerned with, or having a specific interest in, their content.

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1 General considerations

1.1 This Health Building Note replaces the guidance given in Part IV of Hospital Building Note No 12, *Out-Patient Department* (1961 version reprinted) covering the requirements of a day ward and also the guidance on minor operating theatres.

1.2 The investigation and treatment of patients on a day basis is carried out successfully in many units throughout the country.[1-14] A Departmental memorandum (HM(73)32)[15] has described the arrangements that should be made for the care of persons attending hospital for surgical procedures as day patients. Papers on the clinical and administrative arrangements for day patients have been published in medical literature during the last 20 years.

1.3 The growth in the number of day patients has increased considerably since 1972.[16] About 20% of patients in general medical nursing sections are admitted for investigations and diagnosis; many of these have been found suitable for treatment in day nursing sections (wards). Surgeons and physicians who use these facilities for the investigation, diagnosis and treatment of non-emergency patients claim the following advantages:

a. attendance or admission can more easily be arranged to suit patients' convenience;

b. hospital stay is shorter and the cost per patient is less, without any reduction in medical or nursing standards;

c. diagnostic departments can organise an even workload because patients' requirements are notified in advance;

d. the staff of day nursing sections rapidly develop an expertise in investigative work;

e. the sections can be closed at weekends and holidays, thus helping to attract staff who do not wish to work at these times.

1.4 This Note has been prepared to assist only with the provision of accommodation for adult acute day patients, although the treatment facilities associated with this section can be utilised by other patients requiring diagnostic or treatment procedures.

Inclusions

1.5 Guidance is given on the design and planning of the accommodation required for adult acute day patients, ie for adult acute surgical and medical patients who require investigation or treatment which can be carried out on a day basis. The Note should be read in conjunction with the information contained in the memorandum enclosed with HM(73)32[15] 'Arrangements for the care of persons attending hospital for surgical procedures as day patients'.

Exclusions

1.6 Accommodation will not normally be provided for children, mentally ill or mentally handicapped patients, nor for accident and emergency patients, as facilities will be provided elsewhere.

1.7 Patients in an advanced stage of pregnancy who may require day treatment for conditions associated with pregnancy should be treated in the maternity unit.

1.8 The treatment rooms will not be suitable for patients who, because of their need for prolonged anaesthesia or major surgery, require the full facilities of the operating department.

Purpose

1.9 This is:

a. to provide facilities for day care so that more patients can be admitted for investigation or treatment;

b. to take into account the convenience of patients when arranging treatment or investigation;

c. to enable some nursing staff to be employed more flexibly, particularly in relation to hours of duty, since the adult acute day patient accommodation is closed each evening and at weekends;

d. to facilitate the treatment of suitable patients in a more economical way, but without any reduction in medical or nursing standards thus enabling the fullest use to be made of the hospital and community services.

Service background

1.10 As closer links are developed between the hospital and the community, there should be an increasing number of patients whose care and treatment can be carried out at home, with attendance or admission to hospital limited to a very short period. Hospital organisation and staffing must be adequate to ensure maximum supervision of each patient. When discharged, patients continue treatment, as necessary, under the supervision of general practitioners and other primary health care staff.[8,17,18] It is vital to establish a link with the primary health care team which includes general practitioners and those health visitors and nurses who may be attached to a general practice. The need for home helps or other social services should also be identified. In some localities the appointment of liaison community nurses to act as a link between the hospital and the primary health care team has been found helpful.

1.11 It has been demonstrated in adult acute day patient facilities in hospitals throughout the country that many patients who undergo surgical treatment, often including

the adminstration of a general anaesthetic, are fit to be discharged home to the care of the community services on the same day.[1-14] The same hospital day place can therefore be used for more patients in a given period.

1.12 In addition to surgical procedures, there are many investigations which can be performed without keeping the patient in hospital overnight. Some patients may not need to use a day bed and the provision of suitable sitting accommodation in the nursing section will meet their needs.

1.13 Children are especially suitable for day care procedures and normally should be treated in the children's department by staff who are specially trained and experienced in the care of children (see Annex to HM(71)22.)[19,17,20,21] Exceptionally, if such trained and experienced staff can be provided, and specific sessions or accommodation can be allocated, the adult acute day patient nursing section may on occasions be utilised for children.

1.14 It must be emphasised that a short stay in hospital does not imply any reduction in patient care or standards of treatment.[11,13] The successful use of day facilities requires standards equal to those for comparable in-patient nursing sections. It is particularly important that general anaesthetics administered to day patients should be of short duration and of a type that will allow a rapid return to full consciousness.[22]

Philosophy — general

1.15 The decision to treat a patient on a day basis will usually be taken during an out-patient consultation. It will be more convenient for the patients, and reduce the time they spend in hospital, if all arrangements for treatment and investigation are made before attendance for day care. The district nurse may be called upon to help in preparations for investigations which need to be undertaken in the home before the patient arrives at the hospital. Suitable arrangements should be made for this. It is equally important to ensure that the patient's home circumstances are suitable for early discharge. Arrangements for transport need to be confirmed or made, but this does not mean the use of ambulance services.

1.16 Those responsible for the patient's care should confirm that the patient is a suitable case to be treated on a day basis. Decisions must be made on various matters such as whether or not a general anaesthetic is required, whether the environment of the adult acute day patient treatment suite is suitable for the procedure planned, or whether the main operating department should be used. It is particularly important, if an investigation or operation requires a general anaesthetic, that it is of short duration and administered in the morning, so that the patient is fit to be dishcharged home before the day patient nursing section is due to close.[8,12,22] Patients who are to receive a general anaesthetic should be warned that they must not drive or operate machinery for twelve hours after treatment. It is recommended that admission should be arranged in consultation with the staff of the adult acute day patient nursing section who are aware of the importance of these details.

1.17 Admission to in-patient accommodation must be guaranteed should a day patient not be fit for discharge by the evening of the same day. This also applies in the event of an emergency occurring after discharge home.

Philosophy — treatment facilities

1.18 A proportion of day patients will require the full facilities of an operating department and it is therefore essential to establish that operating theatre capacity is already available to meet the additional needs of day patients. If not, an extension to the operating department will need to be considered. A treatment suite should be provided for those patients who do not require the facilities of the main operating department. The project team should stipulate the range of procedures which may properly be carried out in this treatment suite.

1.19 Exceptionally, an operating theatre suite attached to the adult acute day patient nursing section may be considered. However, the considerable capital and revenue costs and staffing implications (particularly for anaesthetic and nursing staff) of an isolated theatre suite must not be ignored. Where an operating theatre suite can be justified, the treatment suite should be omitted, and one normal in-patient nursing section treatment room and one treatment bathroom provided.

1.20 Successful use of the day facilities demands a well organised, multi-disciplinary operational policy to achieve the best use of personnel and resources. Procedures must be well defined; for example, reports of radiodiagnostic and pathology investigations should be returned to the adult acute day patient nursing section the same day, if possible, so that their significance can be considered before the patient is discharged.

Workload

1.21 The daily workload may vary in type and nature according to the proportion of patients attending for diagnostic or surgical procedures. Depending upon the availability of treatment facilities, it is reasonable to assume that in a district general hospital about 30 adult acute day patients would attend each weekday for treatment or investigation.

Main functional units

1.22 The facilities required comprise:

a. an adult acute day patient nursing section (ward) (2.10-2.44, 2.56-2.58)

b. a treatment suite with associated reception and support areas for patients being investigated or treated on a day basis (2.45-2.55)

An appraisal of service needs may indicate that more accommodation is necessary than is set out in this Note. In these circumstances, consideration will need to be given to the provision of more than one adult acute day patient nursing section in a district general hospital rather than merely increasing the number of beds in one nursing section. Depending on local requirements, this does not necessarily mean full duplication of all the facilities described above. For example, one treatment suite may be sufficient to cope with the workload generated by two

nursing sections taking into consideration that a proportion of the additional patients will utilise the main operating department or undergo other investigations.

1.23 There are two main factors which influence the size of the section:

a. the span of nursing supervision — a large proportion of bed patients will be at similar stages of nursing dependency at the same time;

b. the use of the facilities by patients for a morning or afternoon only — some may not need to occupy a bed and the provision of suitable sitting accommodation will meet their needs.

1.24 The particular nature of day patient facilities dictates the need for specially designed or adapted accommodation. A normal adult acute nursing section is not suitable for this purpose because of differences of patient throughput and associated workload. As with other patient accommodation the needs of disabled persons who may use the section from time to time should be taken into account.

1.25 An adult acute day patient nursing section (ward) should normally be limited to:

a. 14 beds;

b. sitting/recovery space for 16 patients and space for four escorts;

c. waiting space for six persons at the reception (with possible overflow to the sitting/recovery area at peak periods);

d. associated ancillary accommodation;

e. a treatment suite (*OR* a nursing section treatment room and treatment bathroom when an operating theatre suite has been provided).

Relationships with other departments

1.26 The location of the accommodation (Figure 1) should be determined by the following, in order of priority:

a. close to the operating department for ease of transporting patients to and from the adult acute day patient nursing section;

b. associated with in-patient nursing sections;

c. close to, either vertically or horizontally, the main entrance/hospital reception.

Statutory and other requirements

1.27 It is Government policy that health buildings should comply with the technical requirements of all relevant statutes and regulations even though the Crown need not always follow the procedural requirements of such legislation. Health buildings should also comply with all relevant codes of practice and standards. While this guidance as far as possible takes account of all statutory and other requirements in force at the time of writing, it does not relieve health authorities of the responsibility of ensuring compliance with statutes, regulations, codes and standards at all stages in their building projects.

Fire safety

1.28 The need for structural fire precautions and means of escape from the whole accommodation must be taken into account at the earliest possible planning stage. Departmental guidance on fire safety as it applies to new health buildings and new parts of health buildings (eg extensions) is contained in Health Technical Memorandum (HTM81) entitled *Fire Safety in Health Care Premises*[23] which is the first of a series currently in

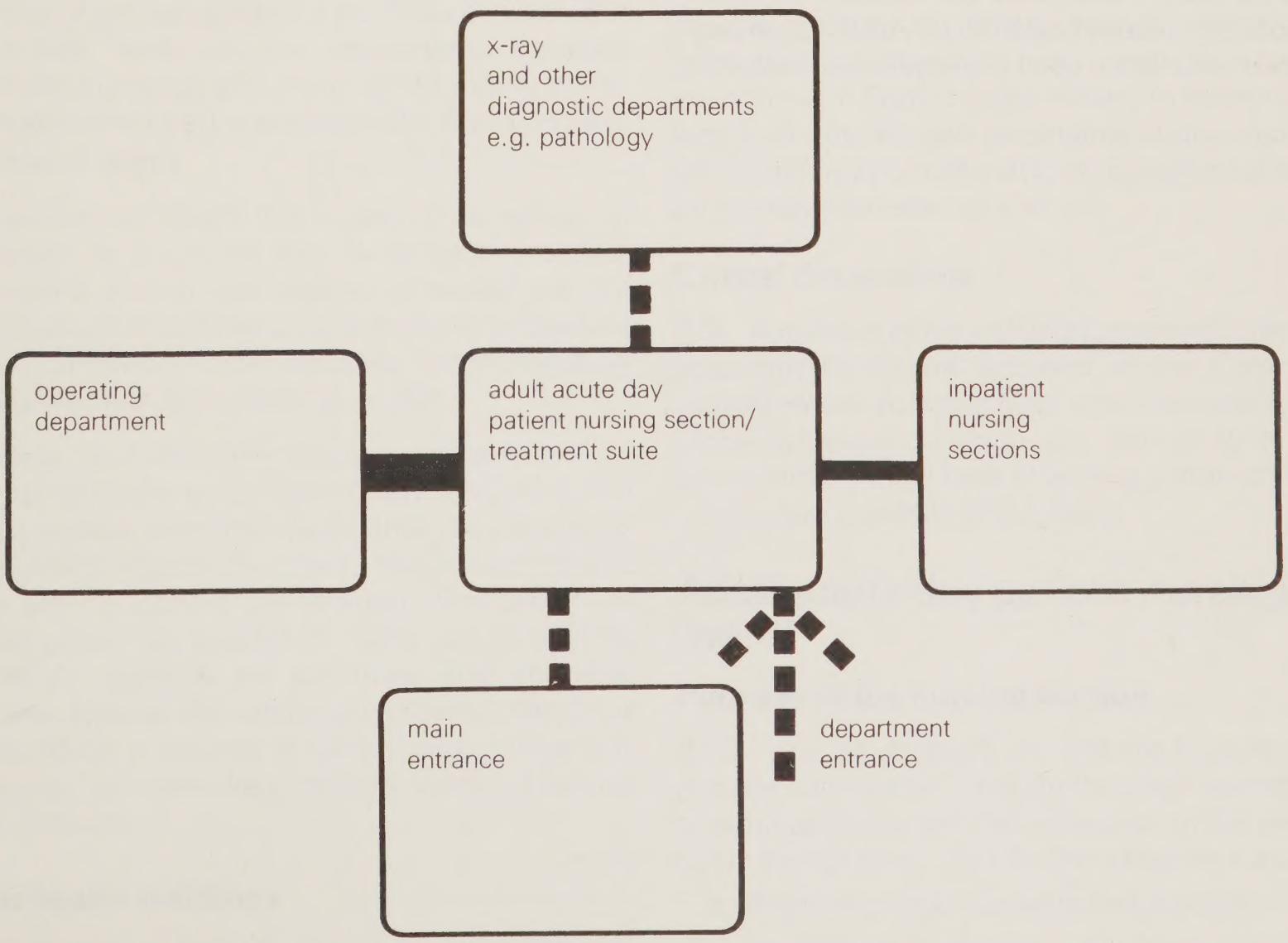


FIGURE 1 Hospital Relationships

preparation. It is essential that project teams familiarise themselves with this guidance, when available, and the statutory regulations on the subject.

1.29 It is important to establish those aspects of fire safety strategy which affect the design, configuration, and structure of a project during the design stage. The designer should then verify his proposals with the chief fire prevention officer of the local fire authority from the inception of the scheme and ensure that the project fire safety officer and all other planning staff are fully acquainted with the *fire safety strategy* for the design in operational terms (staff responsibilities etc) equipment provision, and building and engineering layouts.

1.30 The principles of fire safety apply to new projects and to alterations and upgradings of existing buildings. When altering or upgrading the aim should be to eliminate any existing fire risks.

Smoking in NHS premises

1.31 It is for individual health authorities to make rules about smoking in health buildings under their control and management - see Departmental Health Circular HC(77)3 dated March 1977, but the general approach should be not to allow smoking except in specially designated areas. In such areas special attention may need to be given to ventilation needs to ensure that non-smokers who have to work or go into these areas are not excessively troubled and that offensive odours do not permeate to other non-smoking areas of the premises.

Health equipment note

1.32 Guidance on equipment for the Accommodation for Adult Acute Day Patients is contained in Health Equipment Note 38, *Accommodation for Adult Acute Day Patients*[24], which should be used in conjunction with this Note.

2 Function and design

2.1 This chapter enlarges upon the objectives, functional requirements and design implications of each of the main functional units (1.22). Full details of activities, equipment, environmental conditions and finishes of walls, floors and ceilings are detailed in the Activity Data sheets listed in Chapter 4. The chapter comprises three main sections:

i. General points

ii. Adult acute day patient nursing section (ward)

iii. Treatment suite

2.2 The design of the department must reflect the need to preserve the dignity and privacy of patients, particularly where men and women are nursed or treated in adjacent areas and share certain accommodation and circulation spaces.

Economy

2.3 The design must take account of the need for economy in all aspects including space provision, maintenance, staff utilisation and energy consumption. Whilst the overall capital expenditure must be kept in mind, it is equally important to ensure that running or revenue costs are kept to a minimum and that the revenue consequences of project decisions are fully considered. A booklet entitled 'Note on the relationship between planning health buildings and the cost of running them', issued in September 1980 with HN(80)29,[25] should be of interest to design teams.

2.4 The amount of space for a service or group of services should be no more than is currently needed. Planning should ensure that spaces provided are not duplicated. Spaces should be used intensively and where possible programmed for different users. Correct working relationships will help to facilitate economy.

2.5 Materials and finishes should be selected to minimise maintenance costs (including cleaning costs) and be compatible with the functional requirements. Assemblies which require frequent redecoration or are difficult to service should be avoided. The design of components which are subject to heavy usage such as entrance doors, corners on partitions and counters should receive special consideration. In particular, floor finishes should be restricted in variety and, where soft floor coverings are specified, should have a backing impervious to fluids.

Damage in health buildings

2.6 When designing and equipping health buildings, the likely occurrence and effects of accidental damage should be considered. In particular, damage in health buildings has increased through the use of heavier mechanical equipment for the movement of patients and supplies and, to some extent, by the use of lightweight, often less robust, building materials. Reference should be made to the relevant British Standards and to the advice given in the Department's DS (Supply) letter 42/75 dated 5 August 1975 about the buffering of movable equipment.[26]

Security

2.7 Security will normally be a matter of whole hospital policy. Wherever supplies such as linen, drugs, instruments, cleaning materials etc are stored, precautions against theft will be required, eg cupboards may need lockable doors, windows may have to be barred and, in certain circumstances, there may be a requirement for audio/visual alarms.

Internal spaces

2.8 Internal rooms may contribute to economy in planning but the resultant additional artificial lighting and ventilation which may be necessary will add to both capital and revenue costs. Such rooms are not conducive to good working conditions and should be limited to supporting service rooms or those spaces which are either infrequently occupied or demand a controlled environment. Rooms that are likely to be occupied for any length of time by staff or patients should have windows. Office staff may be difficult to recruit or retain if office areas do not have an external outlook.

Critical dimensions

2.9 A number of the activities which will take place in this accommodation are included in the *Common Activity Spaces Health Building Note* which provides guidance on those dimensions which are critical to their efficient functioning. (At the time of writing a draft of this Note has been made available to the NHS.)

Adult acute day patient nursing section (ward)

Purpose of the nursing section

2.10 The adult acute day patient nursing section will provide day care facilities for the diagnosis and treatment of adult patients, with the exception of the exclusions set out in paragraphs 1.6-1.8. The essential functions are:

a. the reception of patients and escorts;

b. the changing, preparation, treatment and recovery of ambulant patients or those at later stages of recovery following bed care;

c. the bed care of patients in single rooms and multi-bed rooms, enabling the nursing section to accommodate both men and women whilst allowing segregation and privacy for each sex and adequate visual observation by nursing staff.

Organisation and workflow of the nursing section

2.11 Generally the organisation and workflow (Figure 2) will be as described below:

a. patients will be admitted at the commencement of each weekday morning or afternoon session. They may be walking, in wheelchairs or occasionally on trolleys;

b. patients' documentation will be checked on arrival; their medical records should be delivered in a trolley to the reception point before the start of the session and should be returned after the session to the relevant medical records store;

c. except at peak periods, one receptionist from the medical records section should be sufficient to cope with routine enquiries, telephone calls, receiving patients, booking future appointments and checking transport arrangements etc: the receptionist may also provide some supervision of the entrance to the treatment suite;

d. some patients will require the use of the toilet and urine specimen collection facilities on arrival;

e. patients who are to occupy a bed will change within the curtained bed space with access to lockable clothes storage and a bedside locker: those who only require sitting space will use the ambulant patients' changing facilities and will also require secure storage for their possessions;

f. patients will be nursed in multi-bed rooms, in single rooms, or in the sitting/recovery area if the procedure does not require a bed: some may require a relatively high degree of nursing dependency for a short period following investigation or treatment;

g. patients occupying a bed will generally progress to the sitting/recovery area in the later stages of recovery before discharge;

h. most patients are likely to be taken to the operating department, to treatment facilities or to a diagnostic department for their investigations or treatment, but some patients will remain in the nursing section for investigation procedures, eg collection of blood or gastric specimens;

j. generally all patients will be discharged by late afternoon to enable the accommodation to close overnight: a patient who is unfit for discharge would be admitted to in-patient accommodation elsewhere in the hospital;

k. relatives or friends waiting to collect patients on discharge will use the reception waiting area.

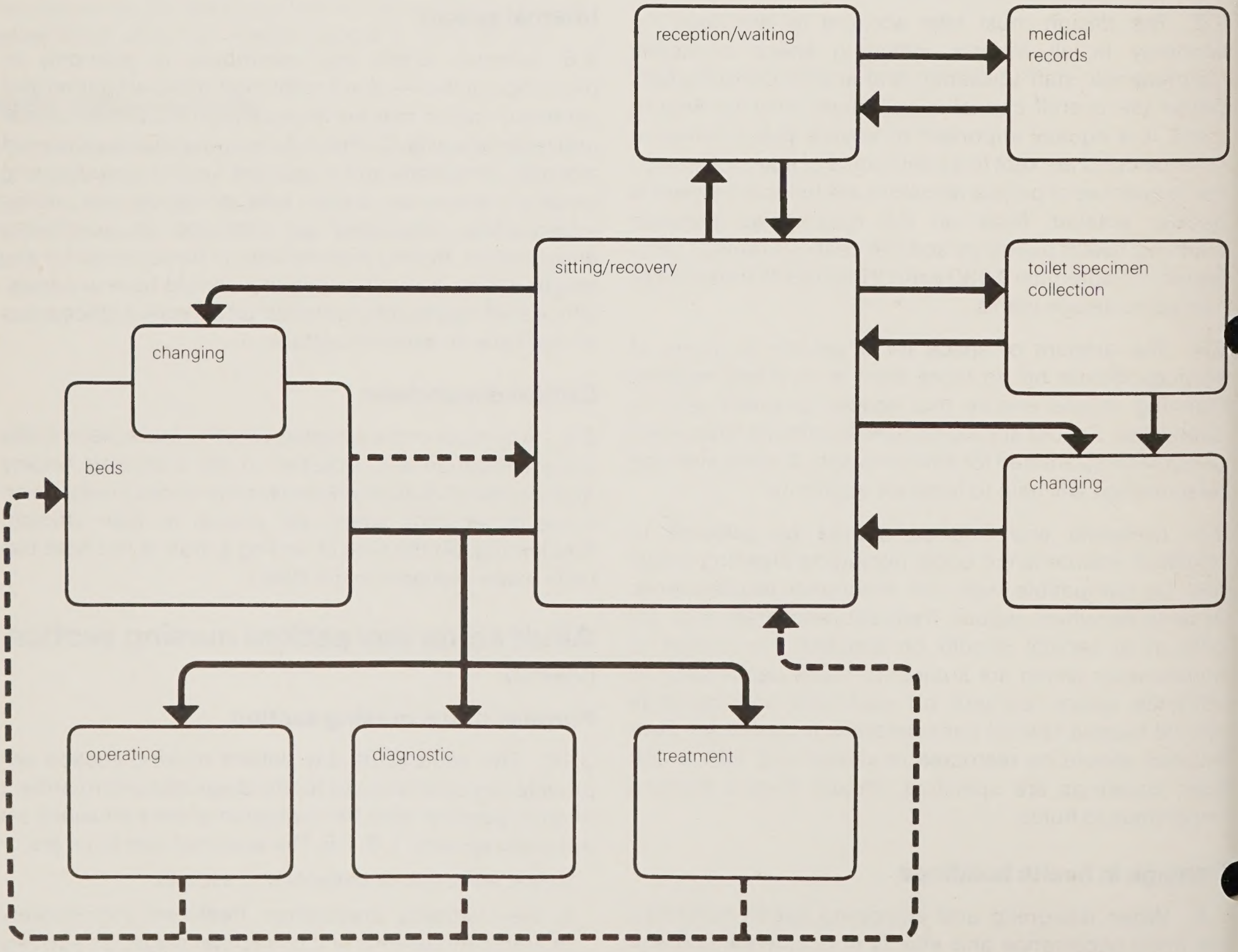


FIGURE 2 Workflow

Functional design requirements of the nursing section

2.12 The functional relationships within the adult acute day patient nursing section are shown in Figure 3.

Reception

2.13 The reception point should be sited conveniently near to the entrance and waiting space. It should also be located within easy reach of the staff base of the nursing

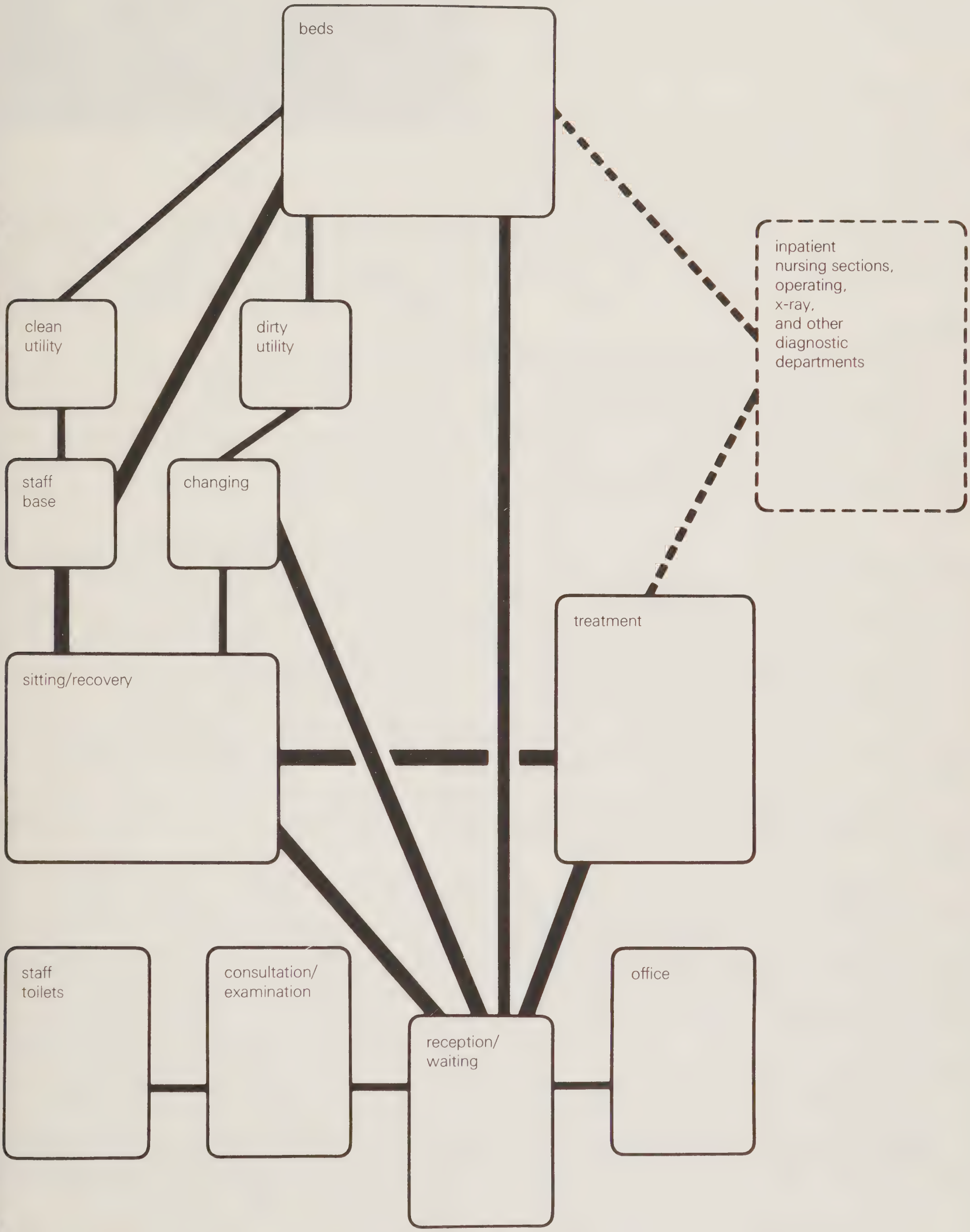


FIGURE 3 Functional relationships of the Adult Acute Day Patients Nursing Section (Ward) and Treatment Suite

section to enable the charge nurse to give advice on the arrangements for the attendance of patients at the time of booking, eg following out-patient consultation.

2.14 A desk and space for a medical records trolley is required, with a telephone and intercom link to the nursing section staff base and one of the two multi-bedrooms. Space will be required at the desk for two persons to cover peak patient reception periods at the commencement of each session on weekday mornings and afternoons.

Administration office

2.15 This should be planned in conjunction with the reception point. Facilities should be provided for the documentation procedures associated with the attendance of day patients, eg maintenance of waiting list, scheduling of sessions, discharge letters, liaison with local authorities, reports etc. Desk space for one person will be required, with additional space for typing and storage of a limited number of records.

Waiting area

2.16 A small general purpose waiting area associated with reception is required. This will be used by patients booking advance appointments and escorts waiting for patients to be discharged. Semi-easy chairs, some of which should be high-backed with arms, should be provided. If this area is planned adjacent to the patient sitting/recovery area, some overflow at peak periods will be possible.

Sitting/recovery area

2.17 A multi-functional space for sitting patients should be provided, around which the rest of the section should be arranged. The primary functions of this space will be:

a. to accommodate patients who are dressed and do not require the use of a bed before, during or after their procedures;

b. to accommodate in the later stages of recovery patients who have used the bed areas and are awaiting discharge;

c. at the beginning of a session to accommodate an overflow of patients from reception who are awaiting admission.

2.18 Comfortable chairs of various designs and differing heights, with some fully reclining types complete with arm rests, should be provided (Figure 4) to accommodate up to 20 persons. The chairs shown in the photograph below indicate the range of those available on central contract. Magazine tables and a space for a television set should be provided.

Patients' changing accommodation

2.19 In addition to the curtained space around each bed, changing accommodation is required, adjacent to the sitting/recovery area, for a maximum of twelve patients (male or female) who will not occupy a bed but need to change.

2.20 Although these facilities will be used intermittently throughout the day, peak use will occur at the commencement of each session. Patients will require varying degrees of assistance and advice from staff,

Reclining chair

especially during the reception period. The ratio of men to women will vary widely between sessions. *The accommodation provided should take account of this fact and ensure adequate privacy.* On occasion sessions may cater for patients of one sex only. This Note provides for the following:

a. two enclosed changing cubicles (one suitable for use by a patient in a wheelchair); one of which can be designated for men and one for women if necessary;

b. twelve full length clothes-lockers with security for patients' belongings, each with sufficient clear space in front for a patient to stand without causing an obstruction;

c. two enclosed WC cubicles equipped for specimen collection and hand washing; one cubicle should be suitable for use by wheelchair patients. Ideally, both cubicles should be adjacent to the dirty utility room with a small hatch through which to hand specimen containers to the nursing staff. One of these cubicles can be designated for men and one for women if necessary.

2.21 Internally located changing and WC cubicles will require mechanical ventilation to remove odours.

Multi-bed rooms

2.22 It is assumed that two multi-bed rooms of six beds will be provided.

2.23 Patients may arrive at their bed space on foot, in a wheelchair or on a stretcher trolley and, in addition, they may return from treatment on a bed. Space is required for patients to dress and undress at the bedside and secure storage for clothing should be provided. Facilities should be such that patients in bed, or sitting in the bed space, can receive therapeutic and clinical attention. Two pairs of piped services, each comprising an oxygen and medical vacuum terminal unit, should be provided in each multi-bed room; one pair should be sited on each side of the room for sharing between two beds. Clinical hand washing facilities are required in each bedroom. Depending on the design solution, it may be necessary to provide a small administrative desk in the six-bed room furthest from the staff base.

Single bedrooms

2.24 Two single bedrooms are needed to:

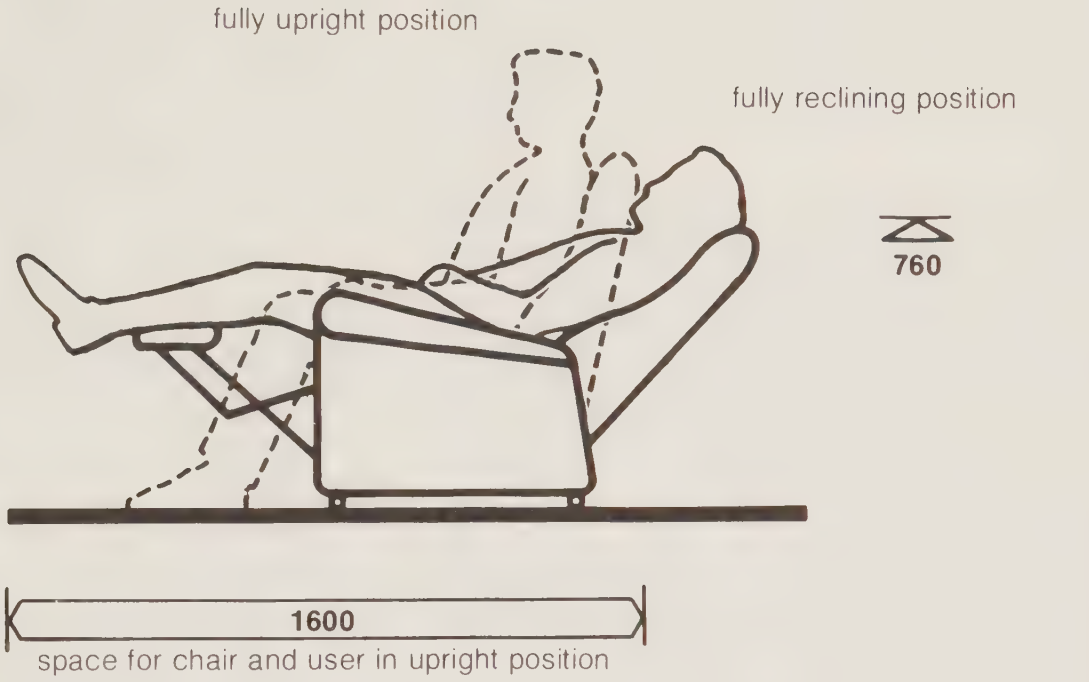
a. increase the flexibility in the use of the section in

Activities
Sitting/reclining in a recovery area

DHSS **Ergonomic data bank**
Component-user data sheet, not to scale

Reclining Chair

Users
Adult day care patients



allocating separate accommodation for male and female patients, as required;

b. accommodate certain patients requiring segregation for clinical or other purposes;

c. accommodate nursing mothers (who are accompanied by a baby).

2.25 Space provision should be based on that for intermediate care patients in adult acute nursing sections. The facilities required are similar to those described in paragraph 2.23 except that one piped oxygen and medical vacuum terminal unit will be required in each room. Provision for clinical hand washing should be made in each bedroom.

Staff base

2.26 The staff base should be sited to provide visual supervision of the maximum number of beds and the sitting/recovery area. It should be close to, but separate from, the reception area. An unobstructed view of the indicator lights of the patient/nurse call system and Controlled Drugs cupboard is essential.

Preparation of beverages

2.27 This Note assumes that meals and hot snacks will be provided from a central meal service and that a central washing-up service is available. Limited facilities are therefore required only for washing-up beverage and snack utensils, for preparing incidental beverages and making toast for patients and, on occasions, for escorts who may have travelled some distance to the hospital. Space to park a catering department trolley should be provided.

Consulting/examination/doctors' office

2.28 A room equipped for both consultation and examination should be provided for use by medical staff working in the nursing section and the treatment suite. The room can also be used for private interviews with both patients and relatives. For convenience, it should be sited close to the reception/waiting area.

Nursing section office*

2.29 A small office is required for routine desk work, interviews and clinical discussions between nursing and medical staff, including community liaison nurses. Ideally, it should be located near to the staff base. This office is in addition to the facilities described in paragraph 2.15.

Clean utility*

2.30 The supply policy for the hospital will determine the requirements for this space, but provision will be required for the secure storage and preparation of drugs (some of which may require refrigeration), medicines and lotions, and a working stock of clean and sterile supplies. Space is needed to assemble equipment for clinical procedures and to park small trolleys.

Dirty utility*

2.31 A general purpose room should be provided for the temporary holding of items for disposal, cleansing and for testing specimens of urine. The room should be located adjacent to hatches communicating with the specimen collecting WCs. Storage facilities are needed for a working stock of single use disposables, or re-usable items such as bedpans and urine bottles. A bedpan disposal unit or bedpan washer disinfector and liquid waste disposal unit will be required. Mechanical extract ventilation should be provided.

Washing facilities and shower*

2.32 A shower with hand washing facilities should be provided for the patients who require this facility and need little or no assistance.

WC provision — patients*

2.33 In addition to the WCs described in paragraph 2.20c, two WCs with hand washing facilities should be provided close to the bed areas; one of these should be capable of accommodating a wheelchair patient. If necessary, each WC can be labelled for men or women as required.

Equipment

2.34 A general purpose store sited near the patient areas will be required. General items to be stored on shelves include disposables, hardware and stationery. In addition, there should be room to house mobile equipment, eg a wheelchair or other wheeled apparatus such as transfusion stands and suction apparatus.

Linen

2.35 The facilities provided for linen storage should be commensurate with the high turnover requirements of an adult acute day patient nursing section and the whole of hospital policy for supplies and laundry services. This may vary from providing an enclosed space for an exchange linen trolley to sufficient shelving to accommodate a topping-up service. This Note assumes a linen store is provided.

2.36 Space should be allowed for the parking of two linen/supply trolleys adjacent to, or in the bed areas. This will provide the working supply of clean linen and supplies which can be topped up from the storage referred to in paragraphs 2.34 and 2.35.

Patient trolley parking

2.37 Provision of space for parking patient trolleys will depend on the whole hospital policy of patient movement. This Note assumes the need for space to park up to two patient trolleys when not in use.

Staff changing facilities

2.38 Provision of this accommodation will depend on two factors: whether a treatment suite is to be included with the adult acute day patient section and the whole hospital policy for staff changing.

2.39 When a treatment suite is provided, staff working in the treatment rooms may wish to change into protective clothing; it is assumed that female staff will change in the adult acute day patient section. If the whole hospital policy is decentralised changing, a locker room with ten full length lockers for secure storage of dry clothing and valuables, and a security rail for wet clothing should be

* For more details about these spaces refer to the *Common Activity Spaces Health Building Note*

provided. If the whole hospital policy is for staff to use central changing facilities, then the female provision will be as in paragraph 2.40 with the addition of two full length lockers. In addition to the provision for female staff, separate changing accommodation for male staff will be required. These needs should be met by the provision of a locker room with full length clothes-lockers and facilities for hand washing.

2.40 If no treatment suite is to be provided and the whole hospital policy is for staff to use central changing facilities, then a small cloakroom with facilities for hand washing in the nursing section will suffice for staff to hang coats and cloaks and keep valuables securely in small lockers. If the whole hospital policy is decentralised changing, a locker room similar to paragraph 2.39, but for eight persons should be provided.

WC provision — staff*

2.41 Two separate WCs, with hand washing facilities, should be provided for male and female staff working in the adult acute day patient nursing section and treatment suite. If the treatment suite is omitted only one WC is required for all staff.

Cleaners' room

2.42 Provision is required for the storage of cleaning materials and equipment etc. Facilities are needed for the emptying and cleaning of equipment.

Disposal room*

2.43 Facilities will be needed for the temporary holding for collection of items for disposal or reprocessing, including refuse, soiled linen and hospital sterilization and disinfection unit (HSDU) returns.

Switchroom

2.44 A switchgear room to house the main isolator and distribution/switch fuse gear should be located centrally to minimise the length of circuit wiring. The size should be sufficient to allow a clear passage in front of the switchgear. The room should be kept dry and well ventilated, and the door should be lockable and open outwards.

Treatment Suite

Purpose of the treatment suite

2.45 The treatment suite is intended to provide facilities for medical and surgical patients to undergo minor operative or diagnostic procedures which, in most instances, are under local analgesia.

Organisation and workflow of the treatment suite

2.46 Generally, the organisation and workflow will be on the following lines:

a. patients may be walking, or arrive in a wheelchair, on a trolley or in a bed;

b. most patients will come from the adult acute day patient nursing section; a few may be in-patients, attending for a diagnostic procedure;

c. patients may be taken directly into either of two treatment rooms or wait in the area adjacent to the staff base (2.51);

d. after investigation or treatment patients may be held for a short while in the recovery bay within the treatment suite (2.51) before returning to the adult acute day patient nursing section or to in-patient accommodation.

Functional design requirement of the treatment suite

Treatment rooms

2.47 Two treatment rooms are required for minor diagnostic and treatment procedures which may include some endoscopic work. Each treatment room should provide an environment equivalent to that of a minor operating theatre and should be supported by specialist ancillary accommodation. Space should be allowed in this area for the transfer of patients to and from trolleys and beds. These rooms should have natural lighting.

2.48 There should be access between each treatment room. One of the treatment rooms can be used as an ante-room or anaesthetic room for the other treatment room and should provide all necessary anaesthetic equipment.

2.49 Each treatment room will require mechanical ventilation to prevent ingress of air from other areas when (a) doors are closed (b) when doors are opened briefly during treatment procedure. Supply air filtration should be 95% efficiency down to 5 microns; room temperature should be 21°C in winter and a maximum temperature of 23°C when the outside temperature is 28°C. A ceiling-mounted operating lamp is required, piped services (ie oxygen, nitrous oxide, medical vacuum) should be supplied via ceiling pendants. There should be a wall or ceiling-mounted terminal unit for coupling with a non-interchangeable connector leading to pipework appropriate to a system for scavenging expired anaesthetic gases (see HC(76)38 which deals with the pollution of operating departments etc by anaesthetic gases).[27]

Treatment room

* For more details about these spaces refer to the *Common Activity Spaces Health Building Note*

2.50 The range of procedures to be carried out in the treatment suite is a clinical decision. However, facilities are likely to be required in each treatment room to allow for:

a. minor operative or diagnostic procedures under local analgesia or general anaesthesia where the facilities of the operating department are considered unnecessary (these may include removal of 'lumps and bumps', biopsies and some endoscopic examinations such as oesophagogastroduodenoscopy);

b. administration of anaesthetic and use of oxygen, nitrous oxide and medical vacuum in connection with operative procedures or resuscitation;

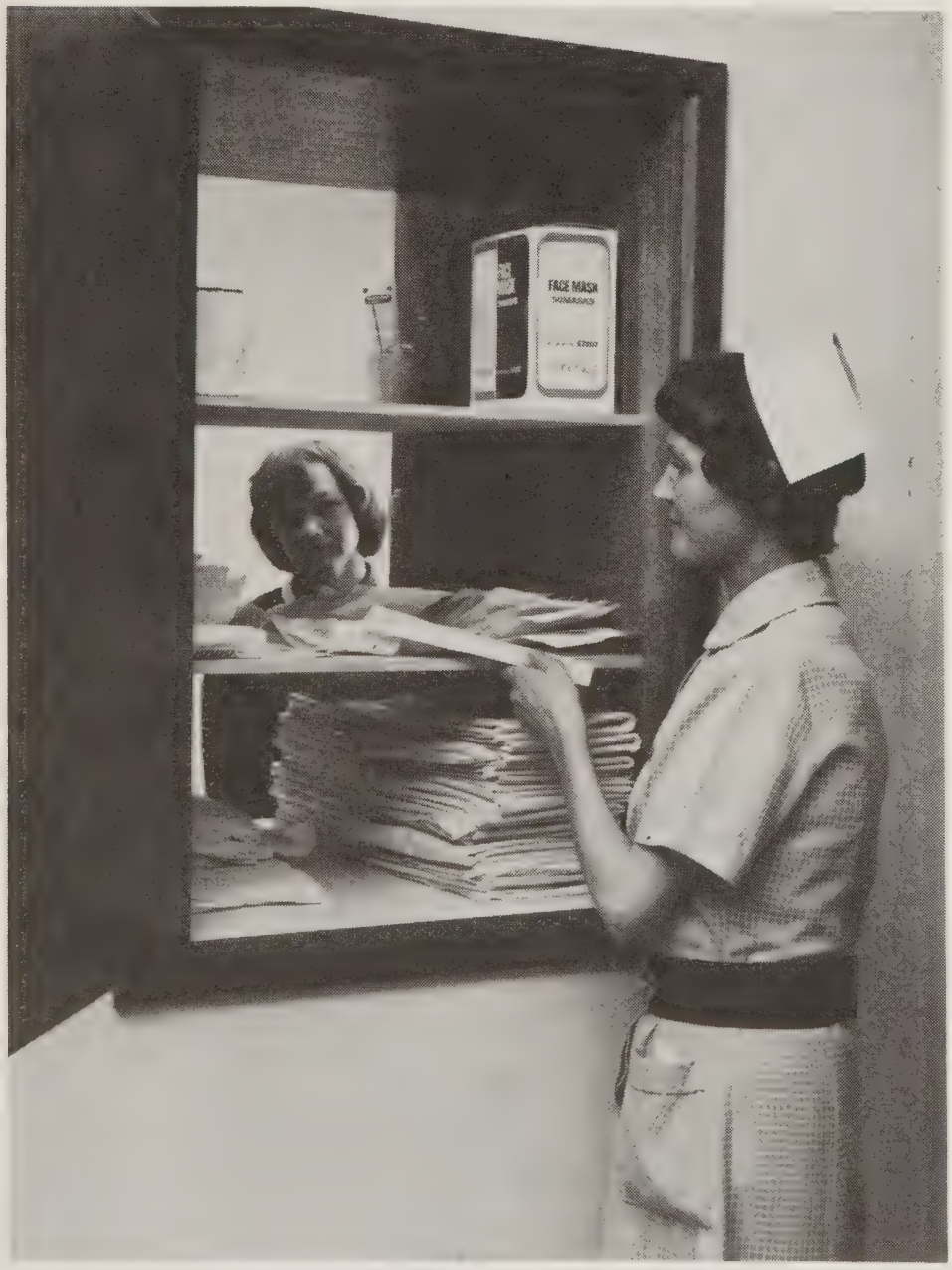
c. viewing of X-ray plates;

d. scrubbing and gowning;

e. the movement of staff and equipment (such as anaesthetic apparatus, and cardiac resuscitation trolley) around the trolley/bed/operating table;

f. the storage of an immediate working supply of sterile goods, dressing and procedure packs, sterile gloves etc;

g. storage of anaesthetic and resuscitation accessories, drugs etc in *one* treatment room: a pass-through cupboard system for topping up immediate-use supplies from the entrance/exit lobby is recommended.



Sterile supplies pass-through cupboard

Staff base/sub-waiting and anaesthetic recovery

2.51 This should be provided to prevent the treatment rooms opening directly into the public circulation areas, and to allow space for patients to be held in the treatment suite temporarily before or after treatment. Up to three staff may accompany a patient. Facilities are needed for the following activities:

a. deskwork for one person;

b. seating for up to three patients waiting for treatment;

c. recovery of patients on bed or trolley in privacy;

d. adminstration of oxygen and the use of medical vacuum;

e. parking of resuscitation trolley.

Clean utility/supply

2.52 This space should be sited to serve both treatment rooms; there must be an unobstructed view of its entrance from the staff base. It will be used for storing drugs, including Controlled Drugs, lotions etc, clean and sterile supplies, and for preparing trolleys for use in the treatment rooms. Parking space is required for a dressing trolley.

Disposal room/dirty utility

2.53 This should also be located convenient to both treatment rooms and should be used for all items for disposal and some cleaning equipment for use in the treatment suite. Mechanical extract ventilation will be required.

Treatment bathroom

2.54 An assisted treatment bathroom will be required for patients who require bathing as part of their treatment.

2.55 Staff changing and WC facilities — see paragraphs 2.38 — 2.41.

Adult acute day patient nursing section (ward without treatment suite)

2.56 The treatment suite will be omitted when the adult day patient nursing section is associated with an operating theatre suite. In this exceptional situation a normal in-patient nursing section treatment room will be required for minor treatments and dressing procedures; a treatment bathroom will also be required.

Treatment room

2.57 Refer to Common Activity Spaces Health Building Note.

Treatment bathroom

2.58 An assisted treatment bathroom will also be required for patients who require bathing as part of their treatment.

3 Engineering services

3.1 This chapter describes the engineering services contained within this department and their integration with the engineering systems servicing a whole site. Its purpose is not to inhibit the design solution but to acquaint the engineering members of the multi-disciplinary design team with the criteria adopted (in terms of material specification, design conditions and reference material) to meet the functional requirements.

3.2 Documents referred to by number viz[40] are listed at the end of this Note.

Model specification

3.3 The library of standard specifications issued in the CS series of engineering data sheets is currently being updated and will be re-issued as a model specification for engineering services in health care buildings. The cost allowance for the engineering services in each functional unit of this department is based on qualities of material and workmanship described in the model specification.

Economy

3.4 Engineering services should be designed to obtain the optimum benefits from the capital invested. Where alternative design solutions are available their consequential capital and revenue costs should be compared using Present Worth techniques[28] due consideration being given to ease of maintenance and minimum disruption of services when repairs or future extensions are required.

3.5 Where design solutions related to economic assessment are indicated the value of energy at the point of use should be used. Taking into account the part-load performance of heat generators and distribution losses, this, for a dispersed site can approach twice that of the delivered cost of the fuel.

3.6 In the interests of energy management and where practicable, facilities should be provided at intake points to this department for the easy attachment of energy monitoring equipment, eg meters, thermometers etc.

Maximum demand

3.7 User demand on engineering services is often difficult to predict but experience indicates that services designed for simultaneous peak conditions are seldom fully utilised in practice. The estimated maximum demand and storage requirement (where appropriate) for each engineering service in this department will need to be assessed individually to take account of building shape, geographical location, operational policies and intensity of use. As a guide and for preliminary planning purposes only the following are the estimated peak demands for a department comprising a Patient Nursing Section and Treatment Suite.

Service	Typical maximum demand	Remarks
Heating, Ventilation, DHWS		
Domestic Hot Water	0.95 litre/sec	Storage 600 litre (2 hour recovery)
Cold Water Supply	1.5 litre/sec	Storage 3000 litre (24 hour supply)
Ventilation (Supply)	0.64m³/sec	Treatment Suite (10kW refrigeration)
Ventilation (Extract)	0.29m³/sec	
Electrical		Essential 14 kW
Medical Gases	See HTM 22	
Fuel Gas	No requirement	
Steam	No requirement	

Plant rooms

3.8 Recommended spatial requirements for mechanical, electrical and pubic health engineering services in health buildings are given in HTM23[29]. This information is specifically intended for use during the initial planning stages when precise dimensional details of plant are not available.

Activity data

3.9 User requirements, working conditions and arrangements, as exemplified in the Activity Data sheets, (Chapter 4) should be referred to when positioning service components and outlets.

3.10 The distribution of mechanical and electrical services to final points of use should be concealed wherever possible employing a ceiling void and a 200mm wide perimeter zone under window sills. Heat emitters should be contained within the latter and critical dimensions should be taken from the boundary of this zone. For costing purposes the 200mm band which includes the floor area occupied by minor vertical engineering ducts is included in the building circulation provision.

Safety

3.11 Under Section 6 of the Health and Safety at Work etc Act 1974[30] there is a statutory duty on designers to ensure (as far as is reasonably practicable) that articles installed or erected for use at work are safe and without

risk to health and safety when properly used. Engineering components, eg pipework, terminals etc are covered by the term 'articles' and thus this duty applies to engineering services in non-domestic buildings.

Fire safety

3.12 Detailed recommendations for the fire protection of health buildings are given in HTM 81[23]* and the design of the engineering services should accord with these recommendations. (1.28-1.30)

3.13 Recommendations concerning fire detection and alarm systems are given in HTM 82[31]* and BS 5839 Pt 1[32]* but agreement with the chief officer of the local fire authority regarding means of detection, alarm and escape should be sought jointly by the engineer, architect and other interested parties during the early planning stages.

Noise

3.14 Excessive noise in individual areas, whether internally or externally generated and transmitted, can detract from the working of the department. The means of control advocated in Hospital Design Note 4[33] and Circular HN(76)126[34] and its Annex should provide an acceptable acoustic environment. Care is required to ensure that there is auditory privacy in treatment/recovery areas and offices particularly where these are located adjacent to public areas.

3.15 Ventilation plant and associated equipment should not be located directly above or below the treatment suite. If there is no alternative then special attention must be given to the control of noise and vibration levels to ensure that the overall noise level in the Treatment Suite does not exceed 45-55 dB(A)L10.

Control access

3.16 The location of engineering distribution control and isolation devices should allow easy access from circulation rather than working areas and they should be protected against unauthorised use, eg concealing switchgear and fuse-boards in discrete cupboards.

Mechanical services

3.17 The mechanical services include the provision of heating, ventilation, air cooling (treatment suite), hot and cold water, and piped medical gases. For cost allowance purposes the distribution of these services (ductwork excepted) are deemed to commence at their point of entry into the department (where isolation and facilities for the attachment of monitoring equipment should be provided) and includes pipework, fittings, controls and connections to equipment and terminal units. The cost allowance assumes that air-handling and cooling plant will be located in the near vicinity and, together with associated ductwork and air terminals, will be an individual system dedicated exclusively to this department.

3.18 For environmental requirements in individual spaces reference should be made to the Activity Data sheets. Recommended room temperatures, air change rates, hot water service temperatures etc are grouped under 'Technical Design Data' on each 'A' sheet. The 'B' sheets give the disposition of engineering outlets for the activities described.

Heating

3.19 General space heating requirements can be met by low temperature hot water radiators operating as a sub-system from the main heating system. These should normally be placed under windows and against exposed walls, with sufficient clear space between the top of the radiator and the window sill to prevent curtains draping over the radiator and adequate space below to allow cleaning machinery to be used. Where a heater is located on an external wall, back insulation should be provided to limit the rate of heat transmission through the building fabric. Information regarding the construction of heat emitters, including their mechanical and thermal characteristics, methods of mounting and fixing, variations in pipe connections, problems of cleaning and maintenance, means of manual control of output and aspects of safety, are given in Engineering Data Sheet DN.4[35].

3.20 To facilitate overall temperature control the heating system should if practicable be zoned relative to each major elevation of the building but, where close individual room control is required, remote sensor thermostatic radiator valves may be used. These valves should be capable of operating to pre-set maximum and minimum temperature settings and should be tamper-proof. Thermostatic radiator valves with built-in sensors may give inadequate control when connected to a modulated heating system.

3.21 Heat emitters should have a maximum touch temperature of 82°C and the flow temperature should normally be controlled via an external compensator. Where space is restricted or heat gains and/or losses are particularly variable consideration should be given to the provision of thermostatically controlled fan-convectors fitted with low-limit control.

3.22 Where practicable the heating system in this department should be clock-controlled and programmed to accommodate the working hours of the unit. The control system, possibly incorporating an optimum-start device, should be used to set-back the space temperature to an anti-condensation level of the order of 10°C when the accommodation is closed (actual set-back to be determined from local trials). To allow for occasional abnormal hours of working, a conveniently sited manual override switch giving two hours additional operation, with visual indication, should be provided for use by authorised staff.

Ventilation

3.23 Recommendations for the ventilation of individual spaces in this department are shown on Activity Data 'A' sheets. In general, the department should be naturally ventilated but mechanical ventilation with summer

* In preparation

cooling will be required in the treatment suite. Mechanical ventilation will also be required in occupied internal spaces if deep-planning solutions are unavoidable. Extract ventilation will be required in 'dirty' areas, eg utility, sanitary facilities etc, irrespective of their location (internal or peripheral); a dual motor/fan unit with automatic changeover facility should be provided to ensure that these rooms are always maintained at a negative pressure when the unit is in use. External discharge arrangements should be protected against back pressure from the prevailing wind and located to discharge well clear of air inlet points and windows.

3.24 Among the factors which affect natural ventilation are building orientation relative to local wind patterns and window design, the latter requiring detailed consideration by both architects and engineers to ensure minimum (but adequate) ventilation in winter. Mechanical ventilation systems are expensive in terms of capital and revenue costs and planning solutions should be sought which minimise their need.

3.25 Air movement induced by mechanical ventilation should be from clean to dirty areas where these can be defined and diffusers and grilles should be located to avoid stagnant pockets of air occurring in areas remote from windows. The design should allow for an adequate flow of air into any space having only mechanical extract using transfer grilles in doors or walls to connect such spaces to corridors. Such arrangements however should avoid the introduction of untempered air and should not prejudice the requirements of fire safety or privacy. If a mechanical supply air system is required for deep-planned areas the fresh air must be filtered and tempered before being introduced through high level diffusers designed to avoid the creation of draughts.

3.26 Ventilation supply plant for this department should include air filters of 95% efficiency against BS2831[36] Test Dust No 2. To reduce the frequency of replacement of filters where the incoming air is exceptionally polluted, it may be desirable to include additional coarse pre-filters. Filters must be readily accessible for replacement and maintenance purposes and provided with a pressure-differential indicator.

3.27 Supply and extract ventilation systems should include local controls and indicator lamps to confirm the operational status of each system. Where the use of the system is on a regular daily pattern, a time-switch control with manual override should be considered. For individual units, eg extract fans, the indicator may be located in the control switch. Where a system is provided for a particular space the indicator should be in or immediately adjacent to that space and, in the case of a more general system of ventilation, eg core areas the indicator should preferably be located at the staff base. Where manual controls are available for staff use they should be provided with labels clearly defining their function.

Treatment suite

3.28 A positive air pressure should be maintained in the treatment suite to avoid ingress of air when all doors are closed and when one door is opened briefly during a treatment procedure. The growing interest in pollution by waste anaesthetic gases requires the maximum possible dilution which is also related to the fresh-air throughput; recirculation of air should not be used although other methods of achieving energy reclaim, eg by heat exchangers, are permissible if they can be economically justified. Provision of an anaesthetic gas scavenging system in accordance with Health Circular HC(76)38[37] will effectively eliminate some sources of pollution within the treatment suite but adequate ventilation will still be required.

3.29 The air-flow requirement to achieve pressurisation of the treatment suite is primarily a function of the area of doorways and the temperature differential across them[38]. This emphasises the need to have adequate controls to ensure that the temperature difference between the two treatment rooms and between the treatment suite and its entrance lobby is kept to an absolute minimum.

3.30 Where a central chilled water supply is not available consideration should be given to providing a multi-stage direct expansion cooling coil in the branch ductwork supplying the treatment suite, with refrigerant piped from an adjacent compression/condensing plant. However, where the Operating Department is in close proximity, enhancement of the chilled water plant serving that department may be an economic alternative to providing a separate refrigeration plant for the treatment suite.

Hot, cold and drinking water services

3.31 The domestic hot water should be stored at a temperature of 60°C and distributed from a local calorifier installation at a temperature not less than 50°C.

3.32 Pillar taps should be used on wash-hand basins in the staff toilets. Elbow action taps should be provided in the treatment rooms, bed areas, clean and dirty utility. Bath and lavatory basins for patients' use should be fitted with capstan-head taps.

3.33 Guidance concerning the design and installation of cold water supply pipework and distribution systems is given in HTM 27[39]. Cold water pipes passing through warm humid areas should be insulated and vapour sealed.

3.34 Drinking water taps should be provided in the clean utility and at the beverage point. The supply to these should be direct from the mains or from protected tanks.

Fire-fighting equipment

3.35 Fire-fighting equipment should consist of hydraulic hose-reels and portable fire extinguishers, and should be positioned so that adequate cover is given to the whole interior of the department. Hose-reels, in accordance with BS5306 Part.1[40] and usually with 30m of hose, should be located so that the jet of water from the fully extended hose is capable of reaching every point on the floor area without interruption. Overlapping of cover by hose-reels is preferred to the provision of additional 9 litre water extinguishers, particularly as the latter are not always capable of extinguishing a fully developed mattress fire; nevertheless a 9 litre water extinguisher should be provided to cover small isolated areas not exceeding 200m^2. Carbon dioxide extinguishers should

be provided to cover electrical risks but for other risks, eg ignited liquid or gas, either carbon dioxide or dry powder extinguishers are appropriate. Extinguishers should comply with BS 5423[41] and further guidance concerning their selection and use is given in HTM 81 referred to in paragraph 3.12.

Piped medical gases and vacuum

3.36 Information regarding medical gases is given in HTM22[42] and any subsequent published amendments. The location of outlets are indicated on the Activity Data sheets.

Electrical services

3.37 The electrical installation will include intake switchgear and wiring and equipment for lighting, power, and environmental plant. Extensions from the hospital central systems for telephones, fire alarms and staff location services, together with a separate patients' call system, will also be required. These installations should comply in all respects with the current *Regulations for the Electrical Equipment of Buildings*[43] and conform to the requirements of HTM7[44].

3.38 Reference should be made to the Activity Data sheets for the recommended levels of internal illumination, disposition of outlets for power, telephones, call systems, fire alarms and clocks etc in individual spaces.

3.39 The point of entry for the electrical supply will be a departmental switchroom housing the main isolators (with provision for metering) and the main distribution equipment. The switchroom will also be the distribution centre for subsidiary electrical services and, wherever possible, all equipment should be mounted at a height to give easy access from a standing position. The whole installation should be positioned within the department so as to minimise the aggregate cost of incoming cable and circuit wiring.

Electrical installation

3.40 The electrical installation in occupied areas should be concealed using PVC insulated cable in screwed steel conduit, or trunking. External installations or any part within the building subject to external conditions, eg ventilated roof space should comprise PVC insulated cables in galvanised screwed steel conduit with fittings of weatherproof pattern. Wiring ways for the telephone system should be provided in accordance with extension requirements.

Electrical interference

3.41 Guidance concerning the avoidance and abatement of electrical interference is given in HTM14[45].

Lighting

3.42 Practical methods of lighting the various functional spaces are contained in the CIBS Lighting Guide[46] and the choice of luminaire (lighting fitting) should take account of the requirements of light distribution, and visual comfort appropriate to the space. Luminaires should be of a type which are easily cleaned and maintained. Their location should be readily accessible for lamp changing and maintenance, but with the overriding requirement that the required standard of illumination is provided at the point of work. Luminaires using fluorescent lamps should be installed when artificial lighting is required for long periods or where areas are devoid of natural light; intermittently used luminaires may be fitted with tungsten lamps.

3.43 It is essential that fluorescent lighting in clinical areas is derived from one of the recommended types of lamps having suitable colour rendering characteristics[47]. In such areas the colours chosen for walls, floors and ceilings should be carefully selected; architects and engineers should liaise to ensure that the decorative finishes are compatible with the colour rendering properties of the lamp and that spectral distribution of the light source is not unduly altered.

3.44 Where acceptable daylight factors in perimeter rooms are incapable of achievement owing to constraints on window sizes, it will be necessary to provide permanent supplementary artificial lighting of sufficient intensity to balance and blend with the available daylight. Lighting designed to these higher standards of illumination should avoid excessive contrast with adjacent areas. It is recommended that this additional illumination is provided by multi-lamp luminaires and their output varied by locally switching part of the light source in each luminaire.

Lighting in bed areas

3.45 The standard of illumination provided at the bed-head (at normal bed height) by the general lighting should be 30-50 lux. The illumination in the centre of the nursing section (ie the walking space between bed-ends) should be not less than 100 lux. Additionally, wall-mounted fittings should be positioned at each bed-head to provide an illumination of 150 lux for reading purposes. Wall-mounted luminaires in non-cubicled multi-bedrooms may be adjustable, but movement should be limited to prevent disturbance to other patients, with the switch for the fitting incorporated in the bed-head unit and/or in the patient/nurse call hand unit. These wall-mounted luminaires should be designed to comply with BS4533[48] with particular regard to Section 1.2 of this BS concerning limiting temperatures.

3.46 Night lighting should not be provided nor facilities for low-level lighting at the staff base.

3.47 The avoidance of glare from general lighting luminaires is important and their lamps should be screened from direct vision of a patient in bed to a limiting luminance of not more than 1800 candelas per m^2 (700 candelas per m^2 for recessed ceiling-mounted luminaires). These restrictions should also be applied to luminaires in corridors and circulation spaces which are visible from beds through unscreened glazing.

Treatment rooms (Treatment suite)

3.48 A ceiling-mounted minor operating luminaire

should be positioned conveniently above the couch/table to allow the light to be directed locally. Recommended illuminances are 5000 lux from the operating luminaire and a general illumination of 400 lux for the performance of ancillary tasks.

Corridor lighting

3.49 The lighting of corridor and circulation areas, which generally are areas not covered by Activity Data sheets, should be to an average level of 150 lux, measured at floor level, and should also comply with colour rendering and glare limitations. Mounting luminaires longitudinally along a corridor, centrally, or to one side to assist compliance with glare limitations is acceptable, as also is the occasional transverse luminaire to mark major corridor junctions.

Other lighting

3.50 The remaining lighting in the department should be to the levels shown on the Activity Data sheets with luminaires located and fluorescent luminaires oriented where appropriate to achieve task illumination. Because of the significant effect of lighting on interior design and amenity the final choice of luminaire should be acceptable to both the architect and engineer.

Controlled Drugs cupboard

3.51 In compliance with the relevant sections of BS 2881[49] a red indicating lamp should be provided on each Controlled Drugs cupboard, with parallel indicating lamps where appropriate at: the doorway to the room in which the cupboard is located, the corresponding staff base, and after hours, in a continuously manned area external to the department. The lamps should be interlocked with the cupboard to give visual indication when the cupboard is unlocked and should be supplied from an essential lighting circuit.

Socket outlets

3.52 Sufficient 13 amp universal type switched, shuttered socket-outlets, connected to ring or spur circuits should be provided to allow all portable appliances likely to be used simultaneously to be individually supplied. Activity Data sheets indicate specific locations for the outlets associated with individual activities; the installation of twin outlets should be considered where specific activities occur in juxtaposition.

3.53 Domestic cleaning appliances with flexible leads nine metre long should be assumed and socket outlets, usually in corridors, should be provided to enable such machines to operate over the whole area of the space concerned.

3.54 Fixed appliances rated up to 13 amps should be permanently connected to spur boxes and fused as required. Appliances rated in excess of this load, or those requiring a three-phase supply, should be permanently connected to separate final sub-circuits from fuse-boards and independently switched.

3.55 Switches or other means of isolation should be provided adjacent to electrical machinery and plant to ensure the safety of operators and maintenance staff.

3.56 Electro-medical apparatus, heating appliances and automatically operated equipment should be provided with indicator lights to show when the equipment is energised. Such indicators should be incorporated in the control panel of the apparatus, in the control switch, or in the socket-outlet from which the apparatus derives its supply.

X-ray equipment

3.57 The heavy current surge taken during the operation of mobile X-ray apparatus requires special provision to be made to avoid excessive voltage drop and consequential unsatisfactory operation. A special 13-amp plug is commercially available which has been designed to accommodate the larger sizes of flexible cables used with this equipment. The impedance of the supply to the socket-outlets should be in accordance with HTM7, paragraphs 185-191[44].

Emergency electrical supplies

3.58 Guidance concerning the provision of emergency electricity supplies is given in HTM11[50].

3.59 The installation in the treatment rooms should be so arranged that in the event of a supply failure the operating luminaire is battery-maintained until the standby generator supply is available.

3.60 Socket-outlets should be so distributed that, in each area where essential equipment may be used, socket-outlets connected to at least two separate sub-circuits are available. In this department all socket-outlets should be connected to the essential electricity supply system.

Patient/nurse call system

3.61 Guidance concerning the specification of a Patient/nurse call system, incorporating Type A bed-head units (but not equipped with speech facilities), is given in HTM15[51] and HSE Data Sheet DU 2.1[52].

3.62 The call system should include nurse/nurse call facilities from all bed-heads, in all sanitary accommodation and the treatment rooms.

Staff location system

3.63 The staff location system employed in the hospital should be extended to give adequate cover to this department. Guidance on these systems is given in HTM20[53].

Telephones

3.64 Central telephone facilities for internal calls, either in separate or combined form, will normally be available and should be extended to serve this department. Telephones will normally be of the desk pattern but in bed areas, or adjacent to them, they should be fitted with an indicating call-light and a bell or buzzer of subdued tone.

3.65 Telephone jack outlets for use with a coin-operated telephone trolley should be provided in single and multi-bedrooms and also where ambulant patients may use a telephone with reasonable privacy. An outlet should also be provided at the normal parking location of this mobile unit. To minimise revenue costs all outlets should be common to one outgoing exchange line.

Electric clocks

3.66 Clocks may operate in conjunction with a master clock system or be synchronous units supplied from a local lighting circuit, whichever is consistent with the remainder of the hospital. The number of clocks provided should be kept to the minimum and they should be installed only where they can be viewed by numbers of staff/patients/visitors.

Fire alarm and detecting system

3.67 The fire alarm system should include break-glass call points and should include automatic smoke detectors if door detentes are provided in areas of heavy traffic. The choice of detectors is a complex matter and is dealt with in the guidance already mentioned in paragraph 3.13. With the exception of the treatment suite (visual alarm) audible signals will normally be adequate but it should be noted that sound levels require checking for audibility after full occupancy of the building and after any automatic door detentes have been released.

Inter-communication systems

3.68 A direct inter-communication facility will be required between reception, the staff base, and one six-bed room. Consideration should also be given to extending this facility to the treatment suite using a unit capable of push-button operation and of a type that does not suffer deleterious effects during washdown. The cables for this system should not be installed in conduit or trunking containing cables operating at mains voltage.

Radio and television

3.69 Radio reception facilities should be provided in each bed-head unit and a TV aerial co-axial outlet in the sitting/recovery area and in each of the six-bed rooms, the latter preferably having video sound available from the bed-head units.

Lightning protection

3.70 Protection against lightning should be provided in accordance with BS Code of Practice 326[54] and HSE Data Sheet DB 2.1[55].

Internal drainage

3.71 The primary objective is to provide an internal drainage system that uses the minimum of pipework and

i. remains water and air tight
ii. remains free-flowing with minimal maintenance
iii. is quiet in operation

3.72 General design guidance is given in the relevant British Standards and Codes of Practice including BS 5572 — formally CP 304[56], and the current *Building Regulations*. Recommendations regarding spatial and access requirements for public health engineering services are given in HSE Data Sheet EA5[57].

3.73 The gradient of branch drains should be uniform and adequate to convey the maximum discharge to the stack without blockage. Practical considerations such as available angles of bends/junctions and their assembly, as well as spatial considerations, usually limit the minimum gradient to about 1:50 (20mm/m). For the larger pipes, eg 100mm diameter, flatter gradients can be used but require workmanship of a high standard if adequate self-cleansing flow is to be maintained. It is not envisaged that pipes larger than 100mm diameter will be required within inter-floor or ground floor systems serving this department.

3.74 The drainage system design should include adequate ventilation to relieve accumulation of foul air and to maintain the hydraulic performance of the system, eg the integrity of trap water seals.

3.75 Bedpan macerators should discharge with a short branch to a vertical stack or horizontal drain. The waste should not be installed above or close to heating or hot-water mains. If the macerator discharges to a 100mm drain then frequently-used large volume appliances should be situated upstream of its connection to provide additional flushing to help prevent resinuous sludge accumulating in the drain.

3.76 The materials specified for the drainage system in this department will depend upon their location and the nature of the effluent being discharged. Although adequate for the drainage requirements UPVC may not always be acceptable to the fire officers and neither should it be installed above 'sensitive' areas, eg Operating, Intensive Therapy, Radiodiagnostic or Catering departments etc.

4 Activity data

4.1 The expression "Activity Data" refers to an information system developed to help project and design teams by defining the users' needs more precisely. This information constitutes the Activity Data Base, issued to Health Authorities in 1976, and comprises two types of information sheet: Activity Space Data Sheets (known as 'A' sheets) and their supporting Activity Unit Data Sheets (known as 'B' sheets).

LIST OF ACTIVITY DATA 'A' SHEETS

Adult acute day patient section

Activity spaces			'A' Sheet Code No	Para No in Building Note
Reception			J0203	2.13
Office — administration — clerical			M1005	2.15
Sub-waiting area			J1204	2.16
Sitting/recovery — ambulant patients			D0901	2.17
Patients changing — cubicles			V0705	2.19
	— WC specimen collection — ambulant patient		V1401	2.20
	— WC specimen collection — wheelchair patient		V1403	
6-bed room (2)			B0215	2.22
Single bed room (2)			B0107	2.24
Staff base/preparation of beverages			T0105	2.26/7
Consulting/examination/doctors' office			C0211	2.28
Office — administration — nursing		C	M0201	2.29
Clean utility		C	T0601	2.30
Dirty utility		C	Y0301	
			Y0307	2.31
Washing facilities and shower, ambulant patient		C	V1606	2.32
WC facilities — patients — washroom WC				
	— wheelchair patient	C	V1204	2.33
	— ambulant/assisted patient		V1106	
Equipment store			W1506	2.34
Linen store			W1416	2.35
Equipment parking			G0106	2.36/7
Staff changing facilities —				2.38
— central changing policy (no treatment suite)			V0608	2.40
— central changing policy treatment suite provided			V0601	2.39
— central changing policy treatment suite provided			V0408	2.39
— decentralised changing policy (no treatment suite)			V0401	2.40
— decentralised changing policy treatment suite provided			V0407	2.39
— decentralised changing policy treatment suite provided			V0408	2.39
WC facilities — staff (1 or 2)		C	V1005	2.41
Cleaners' room			Y1102	2.42
Disposal room (holding)		C	Y0603	2.43
Electrical switchroom			K0101	2.44
Treatment room	where treatment suite	C	X0101	2.57
Treatment bathroom	not provided		V1713	2.58
Treatment suite				
Treatment room			X0212	2.47
Treatment room			X0213	2.50
Staff base/sub-waiting/recovery			T0202	2.51
Clean utility/supply			T0508	2.52
Disposal room/dirty utility			Y0607	2.53
Treatment bathroom			V1713	2.54

C = Common Activity Spaces Health Building Note

Adult acute day patient section

Activity unit title	'B' Sheet Code No.
Cleansing	
Clinical handwashing	A02AH
Clinical handwashing, scrub-up trough 2 places	A02AU
Preparation / storage	
Controlled Drugs and medicines, 5 cupboards, medicine trolley, fridge	A05BE
Controlled Drugs and medicines, 6 cupboards, refrigerator	A05CD
Supervision control	
Staff base, nursing section	A19A1
Examination	
Clinical examination single-side access	A22AY
Treatment	
Clinical area with couch and piped oxygen and suction	A24AP
Minor surgical procedures, pendant services	A24BS
Bed / cot care	
2 socket outlets, bedside wardrobe	A26BF
2 socket outlets, bedside wardrobe oxygen and suction	A26BH
Assessment	
X-ray illuminator double wall mounted	A27AB
Holding testing	
Urine testing	A29AL
Operative procedures	
Surgeon's platform	A33AF
Heated lotion cabinet 1600 x 800 x 500 mm	
48 x 1 litre operating department	A33AP
Control panel	A33CE
Recovery	
Operative procedures, trolley area single with services	A34AK
Anaesthesia	
General anaesthetic apparatus trolley	A38AD
Gas cylinder storage, clips wall mounted	A38AI
Changing	
Cubicle, patient categories 1-4 with chairs	B01AU
Cubicle, curtained	B01BD
Sink unit with 2 shelf tier 900 x 300 mm	B02BM
Storage	
Cupboard 1800 x 900 x 450 mm steel, lockable	B04BY
Clean and sterile supplies, 9 basket rack, 3 trolleys and 3 shelves over	B04HA
Platform 300 x 900 x 600 mm	B04KV
Cupboard 900 x 600 x 600 mm 3 door pass through	B04QZ
Preparation	
Beverages incidental	B06CI
Disposal holding	
Dirty utility	B08AO
Disposal	
Liquid waste	B09AC
Bedpan disposal unit nursing section	B09BD
Bedpan washer unit	B09BK
Incontinence waste unit	B09BN
Reception	
Counter department L form with intercom	B11AG
Administration	
Desk single pedestal with chair and socket outlet	B14AQ

LIST OF ACTIVITY DATA 'B' SHEETS

Adult acute day patient section

Activity unit title	'B' Sheet Code No.
Administration	
Desk single pedestal with modesty screen, chair, telephone and socket outlet	B14AX
Single pedestal, desk with chair, telephone and socket outlet	B14AY
Secretarial	
Desk unit with telephone and socket outlet	B15AI
Toilet	
WC staff female	B27AV
Personal washing	B27BA
WC specimen collection and personal washing	B27DT
Shower, patient categories 1-3	B27DW
WC and personal washing categories 1-3	B27EJ
Wheelchair specimen collection and handrinse basin	B27EL
WC wheelchair and personal washing	B27EW
Treatment bath	B27FB
Parking	
Chair weighing machine	B31AE
Portable suction jars pipeline	B31CO
Steps, 3 tread, mobile	B31EA
Grooming	
Mirror 600 x 300 mm wall mounted with shelf under	B43AA
Cleansing (domestic services)	
Sink unit	B52AA
Clothes storage	
Lockers twin 1800 x 600 x 530 mm	C01CB
Lockers twin 1800 x 400 x 550 mm	C01CC
Locker small wall mounted 300 x 300 x 300 mm	C01GA
Lockers small wall mounted 1200 x 300 x 300 mm	C01GC
Hat, coat, umbrella hanging wall mounted	C01HD
Hat, coat and shoe rack with coat security 10 coats	C01ID
Hat, coat and shoe rack with coat security 5 coats	C01IF
Hat, coat, shoe rack with coat security 10 coats free standing	C01JA
Storage	
Hooks, hat and coat, two	C03CB
Hooks, hat and coat, three	C03CC
Hooks, hat and coat, four	C03CD
Hooks, hat and coat, eight	C03CH
2 equipment pegs 150 mm centre	C03EA
3 clip equipment	C03GI
Chairs	
Upright stacking	C04CA
Easy with open arms, low back	C04CG
Easy with open arms, high back	C04CH
Wheelchair	C04GD
Sanitary	C04GF
Wheelchair folding	C04HE
Reclining	C04HH
Bench seating	
450 x 1200 x 450 mm with shoe rack under	C07EA
Tables	
710 x 900 x 600 mm	C09CD
Occasional 530 x 840 x 455 mm with shelf	C09FC
Disposal containers	
Holder, sack, small, free standing	C12CA
Holder, sack, medium, free standing	C12CB
Sack holder, small free standing foot operated	C12DA
Sack holder, free standing foot operated	C12DC

LIST OF ACTIVITY DATA 'B' SHEETS

Adult acute day patient section

Activity unit title	'B' Sheet Code No.
Disposal containers cont:	
Sack holder, large, mobile, with lid foot operated	C12FC
Book storage	
Standing wood doors, 1200 mm long, 4 shelf	C13CE
Mirrors	
Mirror wall mounted 1500 x 400 mm	C17CA
Wall mounted 600 x 300 mm	C17CB
Display panel	
800 x 600 mm	C18CA
Wall mounted 800 x 1200 mm	C18CB
Wall mounted 1200 x 600 mm	C18CC
Document storage	
Cabinet filing 2 drawer	C23CA
Cabinet filing 4 drawer	C23CB
Card index cabinet, 4 drawer	C23DC
Card index cabinet stand 450 x 450 x 450 mm	C23EB
Stools/rests	
Stools kick retractable castors	C27CD
Stool surgeons'	C27DA
Trolleys	
Trolley dressing large	C31CH
Supermarket	C31CK
Clean linen exchange	C31GA
Linen	C31GC
Soiled linen, single ring	C31GE
Patient	C31IA
Resuscitation	C31JA
Cleaning	C31KF
Telephone with coin box	C31KH
Racking	
Metal 2000 x 900 x 450 mm	C31CI
Shelving	
Shelf right hand end splayed and rounded 900 x 300 mm	C33DJ
Square ends 1200 x 400 mm	C33EC
Square ends 1200 x 500 mm	C33ED
Square ends 1500 x 300 mm	C33FB
Square ends 1500 x 500 mm	C33FD
Square ends 2100 x 400 mm	C33HC
Uprights	C33JD
Domestic cleaning	
Vacuum cleaner domestic cylinder	C52CC
Scrubber/polisher large	C52DC
Bucket wringer type, double mobile	C52EA
Dry suction machine, industrial cylinder power socket outlet with accessories and driven brush	C52EC
Scrubbing, polishing machine industrial	C52EG

4.2 'A' sheets record in more detail than elsewhere in this Note each task or activity that is performed in a particular activity space (which may be a room, space, or bay) together with details of the environmental conditions and the technical data necessary to enable the activities to be performed. Each 'A' sheet also contains a list of the titles and code numbers of the relevant 'B' sheets which give, both in narrative text and in graphics to scale, equipment fitted or supplied as part of the building and engineering terminals which satisfy the required user activities.

4.3 Further information about the use and preparation of Activity Data can be found in the "Guide to 'A' and 'B' Activity Data Sheets and their use in Health Building Schemes" issued to NHS Authorities in July, 1980.

Activity data applicable to this note

4.4 The 'A' and 'B' sheets recommended for the activity spaces described in this Note have been newly prepared or selected from existing sheets. Their code numbers, and titles are provided on the lists which follow.

4.5 Further Activity Data sheets may be selected, or drawn up by project teams to their own requirements, for any services not described in the Note or included in the list. However, in order to ensure consistent and economic provision, variations from the 'A' sheets recommended for the spaces covered in this Note should be considered only where it has been decided that the function of a space will differ from that described.

5 Cost information

5.1 For all types of health buildings it is clearly of vital importance that building costs and revenue expenditure should be kept as low as possible consistent with acceptable standards. Within this general context building notes provide a synopsis of accommodation for health buildings which the Department, in conjunction with the National Health Service, recommends for the provision of a given service.

Options

5.2 This Note, where appropriate, draws attention to alternative ways of providing services or facilities, including the likely cost implications. This information will enable project teams to select the solution which is most suitable to their needs. The options covered in this Note are (a) the treatment suite, or (b) a nursing section treatment room with treatment bathroom which will be required when the treatment suite is omitted.

Cost allowance

5.3 To prepare the cost allowance for a scheme reference should be made to the current edition of Appendix 7 to Hospital Building Procedure Note 6 — Capricode. The total departmental cost allowance appropriate for any scheme is compiled by aggregating the cost of the functional units in the particular scheme.

5.4 The cost allowance covers the building and the engineering guidance set out in this Note. The costing of the functional units assumes that they will be incorporated into a whole hospital to form a complete department.

5.5 The functional units in this Note are:

a. Adult acute day patient nursing section.

b. Treatment suite.

c. Treatment room and treatment bathroom where no treatment suite is provided.

Schedules of activity spaces for each functional unit are provided at the end of this chapter.

Dimensions and areas

5.6 In determining spatial requirements, the essential factor is not the total area provided but the critical dimensions ie those dimensions critical to the efficient functioning of the activities which are to be carried out. (2.9) There are therefore no recommended areas associated with the schedule of activity spaces. To assist project teams in preparing detailed design solutions for the rooms and spaces, the Department has carried out studies to establish dimensional requirements in the form of critical dimensions. The results of these studies appear as ergonomic diagrams in the draft Health Building Note *Common Activity Spaces,* which has been made available to Regional Health Authorities as a working document.

5.7 It is recognised that for development planning and at the earliest stage of a departmental design, it may be convenient for designers to have data available which enables them to make an approximate assessment of the sizes involved. For this reason the schedules of areas, prepared for the purpose of establishing the cost allowance, are included with the health notice promulgating the Departmental Cost Allowance for this Note. It is emphasised that the areas published do not represent recommended room sizes nor specific individual entitlements.

Nursing section

5.8 The cost allowance has been established on the basis of a section of 14 beds and 20 sitting places. The costs allow for (a) two single bedrooms (2.24), (b) two multi-bedrooms of six beds (2.22), and (c) decentralised staff changing facilities (2.38-2.40).

Treatment suite

5.9 The cost allowance assumes that the treatment suite adjoins the nursing section. The costing includes the mal staff changing accommodation.

Treatment room

5.10 The nursing section treatment room together with a treatment bathroom will be required when the nursing section is associated with an operating theatre suite in lieu of a treatment suite.

Engineering

5.11 The costs allow for the provision of the necessary space for a heating and ventilation zone adjacent to external walls and for small vertical ducts. This space is included in the schedule of areas for costing purposes as part of the circulation provision.

Communications–plant space

5.12 Plant rooms, with the exception of electrical distribution, are not included in the costs.

Engineering services

5.13 The following engineering services as described in the Engineering Chapter and exemplified in Activity Data are included in the cost allowance for this department. All engineering services (ventilation ductwork excepted) are assumed to be conveniently available at the boundary of the department. With the exception of an electrical switchroom and a standard enclosure for medical gas isolation points etc plant rooms are excluded.

a. Mechanical services

Heating: low pressure hot water system maximum touch temperature 82°C with zone control.

Ventilation: mainly natural but with a mechanical supply and extract to meet clinical and functional requirements.

Conditioned air: supplied to treatment rooms in the treatment suite and arranged for positive pressure. Cooling plant provided.

Cold water service: centrally supplied to service points including drinking water and hosereels. Storage tanks not included.

Hot water service: centrally supplied at 60°C (storage excluded).

Medical gas: piped supply of oxygen, nitrous oxide and vacuum from hospital centralised system.

b. Electrical services

Departmental distribution switchboard.
General lighting as required by tasks.
Fluorescent, tungsten and emergency lighting fittings as appropriate.
Socket-outlets and other power outlets for fixed and portable equipment.
Standby and safety installation from the main hospital supplies.
Patient/nurse call, radio and TV installation suitable for day patients.
Telephone conduits only.
Staff location extension to hospital loop system.
Synchronous clocks.
Fire, medical gas and drug cupboard alarm systems.
Local intercommunication systems.
Battery for operating lamps.

c. Equipment (Group 1)

Water boilers, incontinence waste disposers, bedpan liner disposal units or bedpan washers with integral steam generator, operating lamps, X-ray viewers, surgeons' panels.

SCHEDULE OF ACTIVITY SPACES

Nursing section

Activity space	
Basic accommodation	No.
Reception	1
Office — administration — clerical	1
Patients' sub-waiting area	1
Sitting/recovery — ambulant patients	1
Patients' changing — cubicles	1
— WC specimen collection — ambulant patient	1
— WC specimen collection — wheelchair patient	1
6-bed room	2
Single bed room	2
Staff base/preparation of beverages	1
Consulting/examination/doctors' office	1
Office — administration — nursing	1
Clean utility	1
Dirty utility	1
Washing facilities and shower, ambulant patient	1
WC facilities — patients — washroom WC — wheelchair patient	1
ambulant/assisted patient	1
Equipment store	1
Equipment parking	1
Linen store	1
Staff changing facilities — female	1
WC facilities — staff	1
Cleaners' room	1
Disposal room (holding)	1
Electrical switchroom	1

Treatment suite

Activity space	
Basic accommodation	No.
Treatment room	2
Staff base/sub-waiting/recovery	1
Clean utility/supply	1
Disposal room/dirty utility	1
Treatment bathroom	1
Staff changing facilities — male	1
WC facilities — staff	1

Treatment room (when treatment suite not provided)

Activity space	
Basic accommodation	No.
Treatment room	1
Treatment bathroom	1

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